

PSYCHOLOGY

Chapter 1

Thinking Critically with Psychological Science

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Thinking Critically with Psychological Science

- **Critical Thinking**
 - thinking that does not blindly accept arguments and conclusions
 - examines assumptions
 - discerns hidden values
 - evaluates evidence

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Limits of Intuition and Common Sense

- **Hindsight Bias**
 - tendency to believe, after learning an outcome, that one would have foreseen it
 - the "I-knew-it-all-along" phenomenon
- **Overconfidence**
 - we tend to think we know more than we do

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Research Strategies

- **Theory**
 - an explanation using an integrated set of principles that organizes and predicts observations
- **Hypothesis**
 - a testable prediction
 - often implied by a theory

Hypothesis: THC adversely affects memory

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The Scientific Method_(TR1-4)

to determine a cause (for behavior, illness...) we need to isolate other variables and study what happens

manipulate one factor/variable of interest and control all other factors

Independent

Dependent

Controlled

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Experimental Condition

- the condition of an experiment that exposes subjects to the treatment, that is, to one version of the independent variable
- **Control Condition**
 - the condition of an experiment that contrasts with the experimental treatment
 - serves as a comparison for evaluating the effect of the treatment

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<http://www.laymanpsych.com/black-uniforms-and-aggression/>

The Design of the Second Frank and Gilovich Experiment

Condition	Manipulation of Independent Variable	Measurement Of Dependent Variable
Experimental	Wear black jerseys	Aggressiveness (game choice)
Control	Not wear black jerseys(wear white)	Aggressiveness (game choice)

Manipulation of Independent Variable

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- **Double-blind Procedure**
 - an experimental procedure in which both the subject and the research staff are ignorant (blind) about whether the subject has received the treatment or a placebo
 - commonly used in drug-evaluation studies
- **Culture**
 - enduring behaviors, ideas, attitudes, and traditions shared by a large group of people
 - transmitted from one generation to the next

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- **Replication**
 - repeating the essence of a research study to see whether the basic finding generalizes to other subjects and circumstances
 - usually with different subjects in different situations

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- **Random Assignment**
 - assigning subjects to experimental and control conditions by chance
 - minimizes pre-existing differences between those assigned to the different groups

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- **Placebo**
 - an inert substance or condition that may be administered instead of a presumed active agent, such as a drug, to see if it triggers the effects believed to characterize the active agent

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- **Case Study**
 - an observation technique in which one person is studied in depth in the hope of revealing universal principles

http://www.youtube.com/watch?v=7iHJfH20TY&safety_mode=true&persist_safety_mode=1&safe=active

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- **Survey**
- technique for ascertaining the self-reported attitudes or behaviors of people
- usually by questioning a representative, random sample of them
- **False Consensus Effect**
- tendency to overestimate the extent to which others share our beliefs and behaviors

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http://www.youtube.com/watch?v=LKyfLFyOit04&feature=related&safety_mode=true&persist_safety_mode=1&safe=active

http://www.youtube.com/watch?v=InsBxq8Hxjc&feature=related&safety_mode=true&persist_safety_mode=1&safe=active

- **Naturalistic Observation**
- observing and recording behavior in naturally occurring situations without trying to manipulate and control the situation



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http://www.youtube.com/watch?v=R0pbdO-gRUo&safety_mode=true&persist_safety_mode=1&safe=active

- **Correlation**
- a statistical measure that indicates the extent to which two factors vary together and thus how well either factor predicts the other
- does not prove cause
- **Illusory Correlation**
- the perception of a relationship where none exists

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Hippocrates' Good News Survey (GNS)... and others...

Hippocrates' delightful Good News Survey (GNS) was designed to illustrate errors that can be hidden in seemingly sound scientific studies. The survey found that people who often ate Frosted Flakes as children had half the cancer rate of those who never ate the cereal. Conversely, those who often ate oatmeal as children were four times more likely to develop cancer than those who did not. Does this mean that Frosted Flakes prevents cancer while oatmeal causes it?

A local police chief in a small Midwestern town finds that as ice cream consumption increases, the crime rates increases. As people eat less ice cream, the crime rate decreases. What explains this relationship? Is it a causal connection or is there something these two variables have in common?

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Why do children with bigger feet spell better? Why, in certain counties in the southern United States, are divorce rates negatively correlated with death rates? Why do nations that have added fluoride to their water have a higher cancer rate?

Scientists have linked television-watching with childhood obesity. In fact, the degree of obesity rises 2 percent for each hour television viewed per week by those aged 12 to 17, according to a study in the Journal of the American Academy of Pediatrics

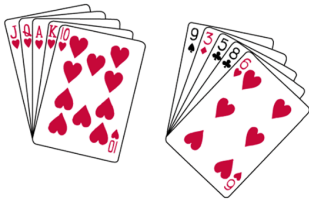
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Illusory Correlation

- Do you believe that previously infertile couples become more likely to conceive a child after adopting a baby?

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Random Sequences

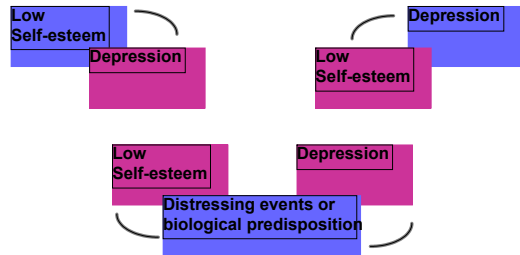


- Your chances of being dealt either of these hands is precisely the same: 1 in 2,598,960.

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Correlation and Causation

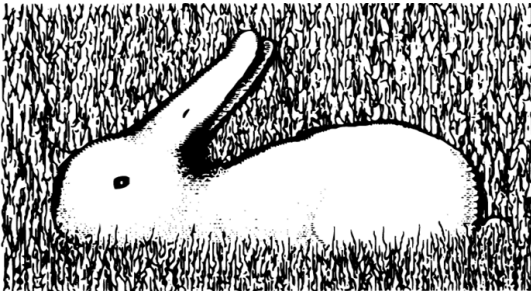
- Three possible cause-effect relations



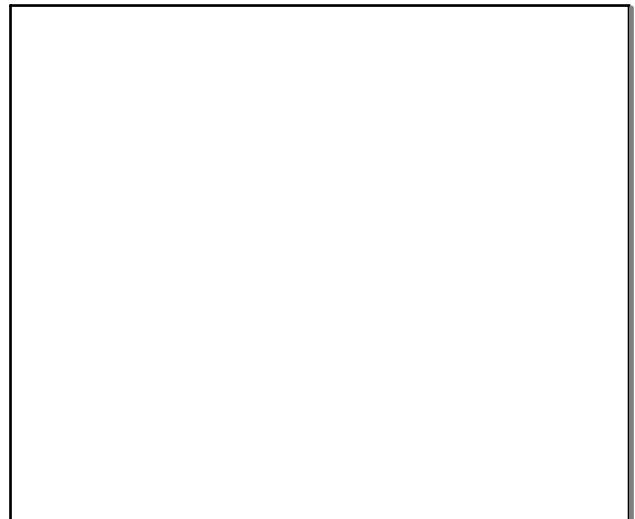
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Duck or Rabbit?

- Our preconceptions can bias our observations and interpretations



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